Work Instruction

DIRECTIVE NO.	303-WI-7120.1.3	**APPROVED BY Signature:**	*Original signed by*
EFFECTIVE DATE:	September 23, 2004	**NAME:**	Susan J. Sekira
EXPIRATION DATE:	September 23, 2009	**TITLE:**	Software Assurance Lead

Responsible Office: Code 303 / Assurance Management Office

Title: Software Quality Assurance Engineering Peer Review Assessment

PREFACE

P.1 PURPOSE

This work instruction is designed to assist Software Quality (SQ) personnel in assessing the engineering peer review (EPR) process, products, and the quality of the review. The Hardware Quality Engineers may find this work instruction and checklist applicable to their surveillance activities; however, they are not required to comply with this work instruction.

P.2 APPLICABILITY

This work instruction applies to all systems development products within the scope of the GSFC Quality Management System. The EPR process applies to project/product formulation and implementation sub-processes.

P.3 REFERENCES

a. GPG 8700.4, Integrated Independent Reviews

b. GPG 8700.6, Engineering Peer Reviews

c. 303-PG-7120.2.1, Procedure for Developing and Implementing Software Quality Programs

d. 303-WI-7120.1.1, Software Quality Reporting Process

e. 303-WI-7120.1.2, Software Quality Assessment Process

f. 303_FRM1_RPT, Software Quality Reporting Form

g. GSFC Software Assurance web page: http://sw-assurance.gsfc.nasa.gov

NOTE: Checklists are intended to guide the assessor in preparing a tailored checklist to meet the specific requirements of the process or product. The enclosed Sample checklist is provided as an example, only. Reference the GSFC Software Assurance web site for additional checklists, forms, and work instructions.

P.4 CANCELLATION

None

P.5 TOOLS, EQUIPMENT, AND MATERIALS

For each engineering peer review, SQ personnel shall attain copies of the guidelines for EPRs [available from the Systems Review Office (SRO)], the Engineering Peer Review Plan (EPRP), review agenda, and the presentation package/materials.

P.6 SAFETY PRECAUTIONS AND WARNINGS

N/A

P.7 TRAINING

SQ personnel must be familiar with GSFC's Engineering Peer Review procedure per GPG 8700.6.

P.8 RECORDS

Record Title	Record Custodian	Retention
SQ Assessment Report	Software Quality Personnel	*NRRS 8/36.51 – Handle as permanent pending retention approval
SQ Reporting Form (completed)	Code 303, Software Assurance Lead	*NRRS 8/36.51 – Handle as permanent pending retention approval
Completed Checklists and assessment artifacts	Software Quality Personnel	*NRRS 8/36.51 – Handle as permanent pending retention approval

**NRRS – NASA Record Retention Schedules (NPG 1441.1)*

P.9 METRICS

SQ personnel shall generate and maintain the following metrics for their respective projects:

a. Number of SQ Assessments (Planned vs. Actual)

b. Number of SQ Assessment Findings

c. Number of SQ Assessment Findings by Priority Level

d. Number of SQ Observations

e. Number of SQ Findings open > 60 days (Aging Report)

f. Number of Risks identified as a result of the SQ assessment

g. Number of Request for Actions (RFAs) generated from the review, as well as closure status

P.10 DEFINITIONS

a. Engineering Peer Review (EPR) – A focused, in-depth technical review that supports the evolving design and development of a product subsystem or discipline area (GPG 8700.6). The purpose of an EPR is to add value and reduce risk through expert knowledge infusion, confirmation of approach, and specific recommendations. An EPR provides a penetrating examination of design, analysis, integration, test and operational details, drawings, processes and data. In the area of software, an EPR can include requirements reviews, design walkthroughs, code walkthroughs, etc.

b. Product Manager (PM) – The individual designated as having management responsibility for a product. A Product Manager may be assigned to any directorate and have a title such as Project Manager, Project Formulation Manager, Instrument Manager, or Principle Investigator.

INSTRUCTIONS

SQ personnel shall conduct all process and product assessments in accordance with the Software Quality Assessment Process Work Instruction, 303-WI-7120.1.2. The latest checklist for an EPR can be downloaded from the GSFC Software Assurance Web site and tailored to meet specific mission requirements or criteria. Note: It is the responsibility of the Product Manager to define and implement an effective peer review process commensurate with the level of risk associated with their system/subsystem.

SQ shall assess the engineering peer review process and products to assure that the:

1. Review is specified in the project's Engineering Peer Review Plan (EPRP)
2. Engineering Peer Review (EPR) guidelines are available for the project team and review team
3. Agenda and review packages conform to the EPR guidelines and the requirements for the review
4. Review team composition meets the requirements/needs of the review
5. Requests for Action are captured, reviewed, and tracked to closure
6. A Summary report is issued within 30 calendar days after the completion of the review

At the completion of the EPR, SQ personnel shall complete their checklist and generate and distribute an assessment report of their findings and observations in accordance with the Software Quality Reporting Process Work Instruction, 303-WI-7120.1.1. SQ personnel are also required to complete the Software Quality Reporting Form (within 5 business days of the completed assessment) for the purposes of Software Assurance metrics. Reference 303-WI-7120.1.1 for additional information on tracking and escalation of findings and SQ follow-up assessment activities.

Sample Engineering Peer Review Assessment Checklist

Date(s) of Assessment: _____ Project: _____

Assessor(s): _____ Peer Review Examined: _____

_____ _____

(Y=Yes, N=No, NA=Not Applicable)

		(Y / N / NA)	w/Comments #
Pre-Engineering Peer Review			
1	Does the Project have an approved Engineering Peer Review Plan (EPRP)?		
1a	If so, is the engineering peer review defined in the EPRP?		
2	Were guidelines used to prepare for the review?		
3	Was an agenda prepared and distributed in advance of the review?		
4	Was a presentation package provided with ample time to review?		
Actual Engineering Peer Review			
5	Did the presentation package contain all required materials (e.g., coding standards, design specifications or guidelines)?		
6	Did the developer comply with required standards and specifications?		
7	Were all agenda items covered within the timeframe of the review?		
8	Was the NASA Lessons Learned Information System (LLIS) or other Knowledge-based resource, as appropriate, accessed for relevant past experience?		
9	Was the engineering peer review team comprised of technical experts with practical experience relevant to the technology and requirements of the subsystem or component reviewed?		
10	Were all review team members independent of the project/product team?		
11	Did a chairperson preside at the review, moderating question and answer periods from review team members and other participants?		
12	Did the chairperson collect Request for Actions (RFAs) from the review?		
13	Did the chairperson summarize the review team's impressions and review the RFAs at the conclusion of the review?		
14	Is there a process in place for reviewing and tracking the closure of RFAs?		
Post-Engineering Peer Review			
15	Did the EPR chairperson issue a report, including the summary impression, findings, and the complete set of RFAs to the Product Design Lead (PDL) and Product Manager within 30 calendar days of the completion of the review?		
16	Did the Project provide a copy of the report to the Integrated Independent Review Team (IIRT) chairperson(s)?		
17	Is there a process in place to control and maintain Engineering Peer Review (EPR) presentation materials throughout the project/product lifecycle?		
18	Are the RFAs being maintained, tracked, and resolved?		

CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	9/23/2004	Initial Release